DOCUMENT RESUME

ED 467 915 IR 021 435

AUTHOR	Rieber, Lloyd
TITLE	Designing Learning Environments That Excite Serious Play.
PUB DATE	2001-12-00
NOTE	11p.; In: Meeting at the Crossroads. Proceedings of the Annual Conference of the Australasian Society for Computers in Learning in Tertiary Education (ASCILITE 2001) (18th, Melbourne, Australia, December 9-12, 2001); see IR 021 433.
PUB TYPE	Reports - Descriptive (141) -- Speeches/Meeting Papers (150)
EDRS PRICE	EDRS Price MF01 Plus Postage. PC Not Available from EDRS
DESCRIPTORS	Computer Uses in Education; Educational Environment; Elementary Secondary Education; Graduate Students; Higher Education; *Instructional Design; Interaction; *Multimedia Instruction; *Multimedia Materials; *Play; Special Needs Students
IDENTIFIERS	Interactive Courseware; *Play Theory

ABSTRACT

This paper proposes the phenomenon of play as a legitimate goal for interactive multimedia learning environments. Play offers a means for understanding motivation and learning in a holistic way. Serious play is not easy to achieve, but the reward is an intense and satisfying experience for both students and teachers. Technology offers many routes to serious play. Some are aligned with the design of interactive multimedia, such as simulations and games. Others are aligned with design activities where students themselves take charge of multimedia tools. Three collaborative projects are offered as examples of this proposal and the issues that frame it involving elementary and middle school students, graduate students, and children with intellectual and behavioral disabilities. (Contains 24 references.) (Author/MES)

Reproductions supplied by EDRS are the best that can be made
from the original document.

ED 467 91:

DESIGNING LEARNING ENVIRONMENTS THAT EXCITE SERIOUS PLAY

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL IN MICROFICHE, AND IN ELECTRONIC MEDIA FOR ERIC COLLECTION SUBSCRIBERS ONLY, HAS BEEN GRANTED BY

H. Carter

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

2A

Lloyd Rieber
Department of Instructional Technology
The University of Georgia, USA
lrieber@coe.uga.edu

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

This document has been reproduced as received from the person or organization originating it.

Minor changes have been made to improve reproduction quality.

Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

Abstract

The phenomenon of play is proposed as a legitimate goal for interactive multimedia learning environments. Play offers a means for understanding motivation and learning in a holistic way. Serious play is not easy to achieve, but the reward is an intense and satisfying experience for both students and teachers. Technology offers many routes to serious play. Some are aligned with the design of interactive multimedia, such as simulations and games. Others are aligned with design activities where students themselves take charge of multimedia tools. Three collaborative projects are offered as examples of this proposal and the issues that frame it involving elementary and middle school students, graduate students, and students with intellectual and behavioral disabilities.

Keywords

play theory, interactive multimedia, learning environments

Introduction

I am interested in those times when a person chooses to devote tremendous effort and emotion to a task. Such intensity can be found in the activities that we usually associated with leisure. Think of your own hobbies. Undoubtedly, there are a few which come close to an avocation for you. Does this kind of activity and the learning that accompanies it ever take place in school? Sometimes, but not very often. A person's interest in school learning rarely compares to the commitment that characterizes their learning outside of school. As a researcher, I'm fascinated with the question of why this kind of learning is so rare in schools. As an educator, I yearn to replicate this kind of learning ferocity in the classroom. There is irony here, because it can be very difficult to arrange one's own learning environment in order to learn something new at a deep level. School has the resources, the time, and the expertise available to help a person. Yet something seems to happen to so many people when they walk across the threshold of school's door that thwarts such learning. Too bad, because when such commitment and passion is supported with resources and guidance, there is a rare opportunity for something wonderful to happen.

I have spent over 20 years as a teacher, first as an elementary school teacher and now as a member of a graduate faculty. I know firsthand how children enter school, taking in and learning about the world as easily as they take in each breath. School soon teaches them a different kind of learning, one where learning is regimented, homogeneous, and based more on rewards and threats than curiosity and interest. This is by no means an indictment of teachers. I am inspired by the great job done by many teachers given the constraints and expectations imposed upon them. At the university level, I continue to be surprised at how strongly conditioned so many adults remain to the school experience. In one curriculum reform effort I've been involved in at the university level that I'll explain more about at the end of this paper, we have tried to create a learning environment to give adults more autonomy, responsibility, and flexible choices for their learning. But a great

IR021435

BEST COPY AVAILABLE

many struggle with such choices and opportunities. It's a very new experience to them, even though the choices and responsibilities they face in their daily lives are much more complex. These experiences as a teacher, coupled with my own learning experiences, have slowly led me to some conclusions about learning in and out of school. In this paper, I focus on the relationship between learning and motivation. I see learning and motivation as inseparable and I have also come to view motivation as the more important of the two. Master teachers and the best designers understand motivation at a deep level and offer true respect for a person's motivation. Learning is not the only goal we educators should seek, but also passion for learning.

When I experience this kind of learning, it is very satisfying and enjoyable, despite being very hard work. For me, it usually comes from the act of tinkering while trying to build or write something. I have struggled over the years to define this kind of learning, but have settled on one simple word to describe it — play. There is nothing special to this claim as play continues to be an important research topic in fields such as psychology (Csikszentmihalyi, 1990; Pellegrini, 1995) and anthropology (Blanchard, 1995). Play is usually associated with children, but despite all of the differences between adults and children, play is a suitable and respectable way to describe intense and meaningful adult learning (Kerr & Apter, 1991). I urge you to resist the tendency to recoil at the sound of the word play to describe your own learning. For instructional technologists, play offers a way to understand the complexity of interactivity of children and adults within educational multimedia. Given computer technology's ever increasing affordances for interactive and social learning, such understanding is essential. Seymour Papert (1993) has described the computer as "the children's machine" due to the way children have so easily acclimated digital technology into their lives. If we as adults want to do the same, we would do well to follow a child's example. As adults, we usually want our children to be more like us, but perhaps in the end, if we want to capitalize on technology's benefits for learning and performance, we may need to be more like them. I believe the phenomenon of play offers the best chance we have for both understanding and realizing the interplay between motivation, learning, and technology.

The purpose of this paper is to call for designers and teachers to use play as an important benchmark for evaluating the learning environments they create or use. Such a call squarely puts motivational outcomes on an equal standing as cognitive ones. It is not enough just to suggest that learning and performance have been demonstrated, but also that students are emotional and passionate when it comes to their learning. This creates a lasting feeling of commitment and ownership. Learning without emotional ties are short-term and temporary. The construct of play is our best candidate for wedding cognition and motivation within learning environments.

I will use the title of this paper to explain my position and to argue that serious play needs to be a fundamental goal for instructional technology, followed by giving a few examples of how my colleagues and I have tried to put these ideas into practice.

Designing: Thoughtful Exercises in Exclusion

Design implies a planned intervention to a solve a problem, fill a need, or realize an opportunity. Unlike art, design has purpose and parameters. Consider the design of something as simple as a doorknob. One cannot create a doorknob without attention to the physiology of the human hand due to the design limits associated with the acts of grasping, turning, pulling, and pushing. Other design limits are imposed by the diversity of human physical characteristics, such that some people are not able to walk or have other limited use of their limbs. A doorknob may have aesthetic elements, but to be used by people everyday, it cannot be art because it cannot ignore the purpose and parameters that art is allowed to follow. For any design, the decision as to what is left out is much more important than what stays. Most designs are thoughtful exercises in exclusion. Of all the possibilities, most are discarded. Unfortunately, the audience suited to the resulting designs will likewise be narrowed. Attempts to change this are mounting, as in the call for *Universal Design* (Rose & Meyer, 2000), a movement begun in architecture to allow access and free movement by all people, no matter their disability and now championed by special educators to

require all educational computer software to meet individual differences among people with disabilities. At first glance, the issues seem simple and straightforward, such as providing text descriptions of all graphics posted on the Internet so that people with visual impairments can access their information. However, as the call for Universal Design in learning environments mounts to give people with other disabilities access to all resources, especially cognitive and behavioral impairments, the issues become surprisingly complex quickly with design solutions impenetrable, leaving designers stymied and frustrated. After all, if Universal Design were possible, we would have a 100% literacy rate.

For most educators, the most prominent example of design is instruction. The role of instruction in learning has led to some tumultuous debates over the last 15 years or so. There have been camps defined on the question of what are the best routes to learning and whether instruction should continue as the dominant path in education. I recall a short debate on the ITFORUM listserv (online) a few years ago debating whether Broderbund's *Living Books* series should be considered instruction. Even the most diehards of instructivists agreed these CDs were wonderful portals for learning and acquiring a love of reading. Is a Living Book instruction? My response was that the question itself was uninteresting. Better questions to ask relate to how learning and passion for storytelling are afforded by their creative designs, or whether such e-Books risk replacing one of the most instructive strategies of all, that of a mother or father reading a book to their young child.

Such debates have taken place due to the rise of a constructivist paradigm in education. Of all the definitions and interpretations offered for constructivism, I prefer epistemological ones that focus on meaning or what it means "to know" something. I am quick to retreat to my Piagetian roots when the constructivist rhetoric starts to confuse or frustrate me. I consider myself a constructivist in that my focus is on a person's learning and "meaning making". But I prefer to call myself a pragmatic and eclectic constructivist because I try to remain open to all ways that will enable learning and resist rigidly aligning any learning approach to just one philosophy. Consequently, I see a role for instruction in learning. Instruction can be a very powerful means to enabling learning. Although there are those constructivists that question any use of preplanned instruction, only the most radical would question the need for a more capable other to help, even intervene, on behalf of another *at just the right moment* and in *just the right way* during learning. Of course, knowing the "right way" and "right moment" is very difficult. That is why the idea of considering the teacher as the facilitator or manager of learning elevates the importance of the teacher. Guiding, shaping, and managing the learning experience is far more demanding than that of dispensing information. It is far more satisfying as well.

Notice that I used the verb "designing" in my title instead of the noun "design". I do so because I do not see design as a completed act waiting to implemented, but as an evolving process that continues as long as a person is learning. Design continues long after the web page has been uploaded or the CD has been burned. At most, one designer passes the design effort onto another, whether they be teachers or the learners themselves. If a web site or CD-ROM has been designed well, it is flexible enough to allow the next designer to use it in interesting ways, especially ways that were not anticipated.

Learning Environments: Maintaining a Delicate Balance

The phrase "learning environment" is one of the most often used in our field. It is used so much that I'm afraid that it has lost much of its meaning. I'll offer a definition. A learning environment is a space where the resources, time, and reasons are available to a group of people to nurture, support, and value their learning of a limited set of information and ideas. Learning environments are social places even when only one person can be found there. The center of a learning environment is sharp, clear, and focused, but the edges are very fuzzy. There are limits to each learning environment, both in what can be learned there and whose learning will be supported most. It is most common to describe a learning environment by the types of resources to be found there, but while the resources are crucial to a learning environment's effectiveness, resources are

only as good as the conditions under which one has access to them.

I've used the phrase "learning environment" a great deal in my writing. I'm fond of it because it conjures up images for me of diverse ecosystems in nature. I've had the pleasure of living in three distinct areas of the United States — the northeast, the southwest, and now the southeast. My many long drives during all times of the year between the northeast, where my parents continue to live, and the southwest and southeast have given me a perspective on the diversity of America's animals, plants, geography, and geology. The differences are striking because the respective environments support and nurture a definite style of life. The diversity of resources and how a plant or animal gains access to those resources is a delicate balance. Interventions, such as dams, clearing forests for farming and houses, shift the balance and the equity. Likewise, learning environments are places where diverse people have different access to limited resources. The goal, of course, is to provide a person all the resources he or she needs in a suitable climate for learning. But we know this is never possible. The complexity of human learning makes even the identification of which resources are appropriate for which people very difficult. One of the most precious resources for learning — time — is usually in short supply. Time spent to comply with the expectation to "cover the curriculum" seems misplaced to me. I have come to value less scope and more depth when it comes to learning. A curriculum is a marvelous aid to learning and teaching, yet it all too often becomes a ball and chain for even the most able and well-intentioned teachers.

Excite: Getting Emotional About Learning

This was the most difficult word to select and its choice took the most time. This word signifies the action arising from our designs, or at least the opportunities for action. Before explaining my choice, you should know that I had many other candidates. But each fell short in many ways. Words like "trigger" or "instantiate" came to mind early, but these imply cause and effect, thus negating the role of choice. "Afford" would have been a good choice because it speaks of certain opportunities made possible by a design while also making it clear that other opportunities are necessarily neglected. Yet, the word carries no emotion which I believe is so vital here. The word "provoke" was actually the runner-up. It conveys the idea of a learning environment so compelling that it actually "dares" a learner not to be interested. Unfortunately, the word also includes feelings of anger.

The definition for "excite" includes the following: "to call to activity; to rouse to feeling usually by a profound moving; to arouse as an emotional response by appropriate stimuli". The kind of learning I'm interested in is emotional, so emotional that one chooses to take action. The call to activity is one based on the human need to satisfy curiosity and to meet a challenge. The marvelous list of similar words that my thesaurus gave me for excite clinched it as my choice: arouse, inspire, animate, move, electrify, charge, thrill, awaken, and energize. All of these aptly capture the type of learning event I hope to convey. I am likewise confident that each of us can list specific learning episodes in our own lives that these words ably describe. There is also a connection to science with this word which provides a wonderful metaphor: "to raise an atom to a higher energy level". I would like to see learning also raised to a "higher energy level".

Serious Play: Elusive, But Always Ready to Emerge

I have been proposing in this paper that play be a goal for the learning environments we create and use. But what is play? Play is an ambiguous phenomenon, as the noted play psychologist Brian Sutton-Smith (1997, p. 1) points out:

> We all play occasionally, and we all know what playing feels like. But when it comes to making theoretical statements about what play is, we fall into silliness. There is little agreement among us, and much ambiguity.

Play can seem so straightforward and simple until one takes the time to try to understand it. Does play serve a purpose? If so, how and for whom? Do adults play? If not, then when does play stop? What is it then that adults do on the golf course, on the tennis court, in the garden, or in the workshop? Is recreation play? If not, then why not and what is it? Is play a diversion, an opportunity to rehearse something in a safe and protected environment, or something else entirely? I warn anyone who takes a peek behind the curtain of play that a confusing world awaits. (See Rieber (1996) for a detailed discussion of the characteristics of play).

I use the phrase "serious play" to try to distinguish it from the typical trivial ways adults use the word play. I like the oxymoronic sound to this phrase — it sounds contradictory. Play sounds fun and even frivolous, but never serious. But I use the term serious play to draw attention to the fact that I'm interested in play that has a purpose, though a purpose equally negotiated between learner and teacher. It also conveys a certain amount of respect for play in learning for both children and adults. This mirrors not only the theory and history behind play, but also its application in education. A simple way of understanding serious play in education is with the advice of "experience first, explain later." A teacher who follows this advice looks for ways to engage learners in some meaningful experience as early on as possible and the uses this experience as an anchor for later instruction. This advice is also consistent with some of the instructional design literature, such as concept of the epitome from Elaboration Theory (Reigeluth & Stein, 1983). Experience is an essential anchor for understanding the formalisms that are typically tested. An explanation of the physics underlying the motion of a basketball can only be understood well by having many opportunities to witness and study the event.

The strong form of my argument is that play serves a cognitive or educative purpose. This is but one aspect of play that has been examined over the years, known as "play as progress". There are many other perspectives to play, such as "play as power" (competitive aspects associated with sporting events) and "play as self" (play for play's sake as an optimal life experience). The history of play research has cycled between assumed benefits of play for learning, socialization, and developmental adaptation (the "play ethos") and serious skepticism about any benefits to play. The most current play theorists are quite cautious when it comes to causal benefits to play, and instead focus on indirect relationships. Learning and other benefits are believed related to play, but such outcomes are thought to be directly attributed to factors such as increased motivation. Despite the long history of play research, there is little research available that directly examines the relationship between play behavior, learning, motivation, and the affordances of existing educational technologies. Frankly, I find it compelling enough an argument to pursue play research in educational technology even if the only justification for play is that it creates the context and climate for a love of learning and creative expression in a particular domain. If play gets a person to the bridge of learning and convinces them to walk half-way across, then I hope that our instructional designs are robust enough to support them the rest of the way over. However, I will not be surprised if we find there is a lot more to it than that.

Serious play is relevant to the many approaches to interactive learning. Constructivists point to the use of microworlds and learning by building, using powerful tools such as Geometer's Sketchpad (Olive, 1998), SimCalc (Roschelle, Kaput & Stroup, 2000), ThinkerTools (White, 1993), and StarLogo (Resnick, 1991). I believe these ideas co-exist well with interactive multimedia based on simulations and games. Indeed, simulations seem to be the great common ground for designers with varying philosophical perspectives on learning and motivation. In a recent special issue of *Educational Technology* (2001, Volume 41, Issue 1) edited by Ward Cates, a group of designers were all given the same educational problem. All used simulations as some meaningful part of their designs even though they had very different philosophical points of view. In a field so fond of design principles such as ours, I've suggested a simple design principle for play: "Look for ways to trigger or coax play behavior in people and then nurture or cultivate it once it begins, just as one looks for a way to light a candle followed by both protecting and feeding the flame" (Rieber, Smith & Noah, 1998, p. 33). I think this a reasonable goal for designers of learning environments.

The Practice of Serious Play

I end this paper by describing a few of my most current projects as examples of my best efforts, in collaboration with many others, to practice these ideas.

The Studio Experience

Faculty in the Department of Instructional Technology at the University of Georgia had a unique opportunity in 1998. The University System of Georgia converted from 10-week quarters to 16-week semesters. All departments were encouraged to use this opportunity to reconceptualize their curricula. Our department did so in many ways. One notable effort of which I was a part was the redesign of our educational multimedia courses to resemble studio approaches most commonly found in schools of art and architecture. There is little space here to detail the studio experience for you, so those interested in the details are encouraged to visit our web site (online) and especially to download and read our Studio Handbook (Rieber, Orey & King, 2001).

In the studio, we tried to capture the experience of artist working long hours working creatively in a communal studio to build works that stand up to public scrutiny. There are many differences between our multimedia studio and an art studio however. The difference between art and design, discussed earlier, is a prime example. The collaborative nature of multimedia design is another example. In the studio, we deliberately have tried to enable mentorship between the more and less experienced students. We have also tried to walk a balance between giving our students the flexibility to choose different learning paths and tools to realize those paths. We have students interested in classroom teaching, corporate training, and constructionism. The ability of the studio instructors to support all of the possible choices is strained and imperfect. Yet, despite the weaknesses, we feel it is a better model than those which impose particular paths and particular tools to learn. Fortunately, the best projects coming out of the studio are a result of students who have thrived with this flexibility. We continue to search for ways to support students who need more guidance and more direction. Our most effective strategy so far has been to help students understand the skills associated with self-directed learning and to free them from excessive evaluation at the beginning of their studio experience. Instead, we ask them to focus on the general nature of design and to be reflective of their designs.

A project closely related to the Studio experience is "The Best Archive", a multi-university partnership dedicated to the archival of the best educational multimedia development work of graduate students (online). The partnership currently involves the University of Georgia, the University of Minnesota, Virginia Tech, and Texas A&M University. We feel it is waste of talent and resources to allow the very best projects done by graduate students to sit on shelves or back-up disks after a course or degree program has been completed. Recognizing student work in this way is satisfying for both studio instructors and students alike and is a much more authentic recognition than a grade. Even more important is the potential for the project to make a difference in other people's learning worldwide.

Project KIDDESIGNER

For almost a decade I and many of my graduate students have spent time with elementary and middle school students designing and developing educational computer games (online). It's been a marvelous experience for us and them. My motivation for starting the project was based on a simple question: Would children be able to take advantage of the opportunity to engage in game design when properly supported to do so? Unlike other well known projects (e.g. Kafai, 1995), we focused more on the design process and less on the goal of children-learning-programming. The children designed the games' goals, rules, characters, and graphics. The adults put it all together according to the children's plan as their plan evolved. We used a rapid prototyping methodology where early but crude, working prototypes were quickly delivered back to the children so they could evaluate and modify their designs by seeing the working examples. The children we worked with easily met the challenges we gave them. We believe they were able to do so for several reasons. First, games are a part of their culture: they are expert game players and game designers.

We were merely asking them to do something in school they do extremely well outside of school. Second, because games, and especially computer games, are a part of their culture, they found the task of game design very authentic. We gave them the task of designing *educational* games, which they perceived as a good use of their time in school. They devoted great amounts of time and effort to their group projects. After all, they owned the games. Finally, we did not impose the same tasks on all the children. They were free to form design teams and team members were expected to take on jobs that suited their skills and interest. We had no problem finding children to play the roles of project manager, subject matter experts, graphic designers, and lead game designers. This is not to say we the adults did no work. Besides doing the programming, we facilitated their work sessions, their brainstorming, and their discussions of making priorities and selecting tasks. They welcomed this advice because they knew they weren't good at it. But, we never told them that we thought some ideas were bad and some were good. Indeed, we quickly gained their confidence after bringing back to them the first working prototype. They found out that this group of adults were a little different — these adults actually listened and apparently took great time and pains to bring them back something that only a few days before were sketchy ideas.

Project KIDDESIGNER has made me believe that a school's curriculum should be based on design activities. I envision the creation of innovative schools that use "learning by designing" as their basic philosophy. I think of these as Juilliard schools of design, so to speak, but not a school reserved for a few because I believe these design talents exist in every child. School should be a place that matters today for children, not merely a place to prepare them for tomorrow. We also need to rethink school as a place where "one size fits all", instead allowing children to develop their own focus and depth. Games are but one type of a design activity, though one with which I have had much success. Such a school would have the following characteristics:

- Work is done largely in design teams in a studio environment.
- Students learn using an apprenticeship model with skill learning embedded in practice.
- Expertise is distributed within the design team.
- The best teams consist of a diversity of people (including diversity of age) and a diversity of knowledge; individuals develop their own expertise areas.
- Students learn how to critically analyze their work and the work of others.
- Learning is achieved through a variety of strategies, with instruction being just one.
- The "basics" are learned through their need and application within authentic projects.
- Not everyone learns the same thing.

Such a school would have an economic, not academic rationale, mirroring what is currently happening in the workplace where the focus is on certificates of expertise, not general diplomas. Students would learn the power of interdisciplinary problem-finding and problem-solving, collaboration, communication, persuasion, argument, and marketing. Such a model would combine business and the arts and sciences. (Such skills are already becoming the basis for e-Commerce.) Education based on design activities is consistent with the information age. In contrast, today's schools are still based on industrial-age attitudes where many fail, a few flourish, and the rest are happy to survive.

Project Shop

The final project I briefly describe here is one of the most satisfying and challenging projects with which I have ever been associated. Project Shop is funded by the U.S. Department of Education to produce educational multimedia for children with special needs, specifically mild to moderate cognitive and behavioral impairments. John Langone, Tom Clees, both on the faculty in the Department of Special Education, and myself are the Project Directors. The goal of the project is to produce stand-alone video and an interactive CD-ROM to support these children as they acquire the literacy and social skills necessary to successfully complete a shopping trip at a supermarket. The design challenge is conversely related to the apparent simplicity of the task. After all, we "normals" take for granted something as mundane as a trip to the grocery store. Yet, the grocery store is a complex place for item discrimination and identification, social interaction, and basic literacy (Morse, Schuster & Sandknop, 1996). My interest in this project is largely due to being the

parent of a young man with very special needs. My son Thomas is diagnosed with pervasive developmental disorder, resulting in a significant behavioral disorder and challenges to learning and language processing.

The design challenges are too numerous to describe well here, but a few of the principles we have followed are worth mentioning. We are using a "no ceilings, no floors" philosophy, a phrase first coined by those at Vanderbilt University to describe activities that even the most and least challenged can access and enjoy. This philosophy was very evident in the video production. Despite my son's many disabilities, he is a sophisticated television and film consumer. The movies he likes the most are clever and intelligent movies, such as the *Back to the Future* series, most of the Ernest movies, Ghostbusters, and many musicals (*Grease*, *Oliver*, and *Annie* are among his favorites). Interestingly, the movies he likes to watch repeatedly are also ones that other adults that work with Thomas enjoy seeing repeatedly too. He is very partial to certain actors, most notably Robin Williams, Jim Carey, Nicholas Cage, Al Pacino, Bill Murray, and Whoopi Goldberg. When we started the planning for the video, we knew it had to have high energy with a level of sophistication and wit that could evoke the feeling of "I'm worth watching". We were most fortunate to work with a professional production firm out of Atlanta called ASV, Inc., headed by a marvelously talented father and son — Alan and Aaron Stecker. The Steckers took the lead in writing a very creative script and, despite a very limited budget, were able to produce an exceptional video (thanks in part also to the exceptional abilities of our project manager, Michael Matzko). The video features two pairs of roommates — Robbie and Brad, and Liz and Rachel — as they share adventures in a local supermarket. Robbie and Liz play characters with cognitive disabilities who show their respective roommates the right way to do things. The video also features Shopper Bob, a "wizard in training", who helps the foursome from time to time (as he attempts to earn his wizard's license) and also narrates the video for the audience. Shopper Bob was played by Tom Clark and was the only professional actor in the entire video. Like Robin Williams, he has a certain comedic energy on the screen which is very hard to ignore. The "normal" roommates provide other comedic opportunities because they are deliberately portrayed as somewhat bumbling and out of touch. We felt it was important to cast the people with disabilities as mentors in order to provide good role models for the children who watch the video. In many ways, it is a very provocative video, both in terms of how it portrays the roommates and its use of a wizard with magical abilities. Of course, we tried not to offend anyone or their beliefs, but we also were not afraid to capitalize on the same cinematic energy and sophistication that Hollywood uses to great effect.

Closing

The Studio, Project KIDDESIGNER, and Project Shop all are based on meaningful experiences to situate learning in authentic ways for the respective learners. Each involve learning environments that give considerable authority and responsibility to the learners with expectations of resources and management on the part of the teachers. The route that the learners take in each case is a demanding one, requiring hard work and commitment. The reward is an intense and satisfying experience that is best described as play. It's an elusive goal, yet one worth the trouble and challenges. I'm hopeful that school can be a place where people with diverse talents and interests can all find a niche. Historically, school has been a place to sort people, a place to figure out who would be the supervisors and managers and who would be the workers and laborers. The goals of education today are much different than they were even 25 years ago. It is clear that expecting everyone to learn the same thing, in the same way, at the same time is not supported by anything we know about learning and cognition. We know how to teach, how to learn, how to play, but we don't know how to manage school's resources — people, curricula, technology, time, etc. — to capitalize on the diversity of our students to bring out their natural learning abilities. Technology and play is a worthwhile combination to bet on in the years ahead.

References

Best Archive. [Online]. Available: http://it.coe.uga.edu/wwild [1 October 2001].

Blanchard, K. (1995). *The anthropology of sport: An introduction — A revised edition* (2nd ed.). Westport, Connecticut: Bergin & Garvey Publisher, Inc.

Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience*. New York: Harper & Row.

ITFORUM. [Online]. Available: http://it.coe.uga.edu/itforum [1 October 2001].

Kafai, Y. (1995). *Minds in play: Computer game design as a context for children's learning*. Hillsdale, NJ: Lawrence Erlbaum Associates.

Kerr, J.H. & Apter, M.J. (Eds.). (1991). *Adult play: A reversal theory approach*. Rockland, MA: Swets & Zeitlinger.

KIDDESIGNER [Online]. Available: http://www.nowhereroad.com/kiddesigner [1 October 2001].

Morse, T.E., Schuster, J.W. & Sandknop, P.A. (1996). Grocery shopping skills for persons with moderate to profound intellectual disabilities: A review of the literature. *Education and Treatment of Children, 19* (4), 487-517.

Olive, J. (1998). Opportunities to explore and integrate mathematics with "The Geometer's Sketchpad" in designing learning environments for developing understanding of geometry and space. In R. Lehrer & D. Chazan (Eds.) (pp. 395-418). Mahwah, NJ: Lawrence Erlbaum Associates.

Papert, S. (1993). *The children's machine: Rethinking school in the age of the computer*. New York: BasicBooks.

Pellegrini, A.D. (Ed.). (1995). *The future of play theory: A multidisciplinary inquiry into the contributions of Brian Sutton-Smith*. Albany, NY: State University of New York Press.

Reigeluth, C.M. & Stein, F.S. (1983). The elaboration theory of instruction. In C.M. Reigeluth (Ed.), *Instructional-design theories and models: An overview of the current status* (pp. 335-381). Hillsdale, NJ: Lawrence Erlbaum Associates.

Resnick, M. (1991). Overcoming the centralized mindset: Towards an understanding of emergent phenomena. In I. Harel & S. Papert (Eds.), *Constructionism* (pp. 204-214). Norwood, NJ: Ablex.

Rieber, L.P., Luke, N. & Smith, J. (1998). Project KID DESIGNER: Constructivism at work through play. *Meridian: Middle School Computer Technology Journal* [Online], *1* (1). Available: http://www.ncsu.edu/meridian/index.html [October 2001]

Rieber, L.P. (1996). Seriously considering play: Designing interactive learning environments based on the blending of microworlds, simulations, and games. *Educational Technology Research & Development, 44* (2), 43-58.

Rieber, L.P. & Matzko, M. J. (2001). Serious design of serious play in physics. *Educational Technology, 41* (1), 14-24.

Rieber, L.P., Orey, M. & King, J. (2001). *Handbook for the EDIT Studio Experience at the University of Georgia*. Athens, GA: The University of Georgia, The Department of Instructional Technology.

Rieber, L. P., Smith, L. & Noah, D. (1998). The value of serious play. *Educational Technology, 38*(6), 29-37.

Roschelle, J., Kaput, J. & Stroup, W. (2000). SimCalc: Accelerating student engagement with the mathematics of change. In M.J. Jacobsen & R.B. Kozma,. (Eds.), *Innovations in science and mathematics education: Advanced designs for technologies of learning* (pp. 47-75). Hillsdale, NJ: Lawrence Earlbaum Associates.

Rose, D. & Meyer, A. (2000). Universal design for learning. *Journal of Special Education Technology, 15* (1), 67-70.

Studio Experience. [Online]. Available: http://it.coe.uga.edu/studio [1 October 2001].

Sutton-Smith, B. (1995). Conclusion: The persuasive rhetorics of play. In A. D. Pellegrini (Ed.), *The future of play theory: A multidisciplinary inquiry into the contributions of Brian Sutton-Smith* (pp. 275-295). Albany, NY: State University of New York Press.

Sutton-Smith, B. (1997). *The ambiguity of play*. Cambridge, Mass: Harvard University Press.

White, B.Y. (1993). ThinkerTools: Causal models, conceptual change, and science education. *Cognition and Instruction, 10* (1), 1-100.

Copyright © 2001 Lloyd Rieber.

The author(s) assign to ASCILITE and educational non-profit institutions a non-exclusive licence to use this document for personal use and in courses of instruction provided that the article is used in full and this copyright statement is reproduced. The author(s) also grant a non-exclusive licence to ASCILITE to publish this document in full on the World Wide Web (prime sites and mirrors) and in printed form within the ASCILITE 2001 conference proceedings. Any other usage is prohibited without the express permission of the author(s).

U.S. Department of Education
Office of Educatonal Research and Improvement (OERI)
National Library of Education (NLE)
Educational Resources Information Center (ERIC)

REPRODUCTION RELEASE
(Specific Document)

I. DOCUMENT IDENTIFICATION:

Title:	ASCILITE 2001 Conference Proceedings		
Authors:	Kennedy, A., Ed.; Keppell, M., Ed.; McNaught, C., Ed.; Petro		
Corporate Source:	Australasian Society for Computers in Learnin	Publication Date:	2001

II. REPRODUCTION RELEASE:

In order to disseminate as widely as possible timely and significant materials of interest to the educational community, documents announced in the monthly abstract journal of the ERIC system, Resources in Education (RIE), are usually made available to users in microfiche, reproduced paper copy, and electronic media, and sold through the ERIC Document Reproduction Service (EDRS). Credit is given to the source of each document, and, if reproduction release is granted, one of the following notices is affixed to the document.

If permission is granted to reproduce and disseminate the identified document, please CHECK ONE of the following three options below and sign at the bottom of the page.

The sample sticker shown below will be affixed to all Level 1 documents	The sample sticker shown below will be affixed to all Level 2A documents	The sample sticker shown below will be affi Level 2B documents
PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL HAS BEEN GRANTED BY	PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL IN MICROFICHE, AND IN ELECTRONIC MEDIA FOR ERIC COLLECTION SUBSCRIBERS ONLY HAS BEEN GRANTED BY	PERMISSION TO REPRODUCE AND DISSI THIS MATERIAL IN MICROFICHE ONL BEEN GRANTED BY
SAMPLE	SAMPLE	SAMPLE
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)	TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)	TO THE EDUCATIONAL RESOURC INFORMATION CENTER (ERIC)
Level 1	Level 2A	Level 2B
○	◉	○
Check here for Level 1 release, permitting reproduction and dissemination in microfiche or other ERIC archival media (e.g., electronic) and paper copy.	Check here for Level 2A release, permitting reproduction and dissemination in microfiche and in electronic media for ERIC archival collection subscribers only.	Check here for Level 2B release, permitting re and dissemination in microfiche only
Documents will be processed as indicated provided reproduction quality permits. If permission to reproduce is granted, but no box is checked, documents will be processed at Level 1.		

I hereby grant to the Educational Resources Information Center (ERIC) nonexclusive permission to reproduce and disseminate this document as indicated above. Reproduction from the ERIC microfiche or electronic media by persons other than ERIC employees and its system contractors requires permission from the copyright holder. Exception is made for non-profit reproduction by libraries and other service agencies to satisfy information needs of educators in response to discrete inquiries.

Signature: H. Carter	Printed Name/Position/Title: Helen Carter - ASCILITE President
Organization/Address: C/CEDIR University of Wollongong Wollongong NSW 2522 Australia	Telephone: 02-4221-4895 FAX: 02-4225-8312 E-mail Address: info@ascilite.c Date: 05/14/02

EFF-088 (Rev. 2/2001)

III. DOCUMENT AVAILABILITY INFORMATION (FROM NON-ERIC SOURCE):

If permission to reproduce is not granted to ERIC, or, if you wish ERIC to cite the availability of the document from another source, please provide the following information regarding the availability of the document. (ERIC will not announce a document unless it is publicly available, and a dependable source can be specified. Contributors should also be aware that ERIC selection criteria are significantly more stringent for documents that cannot be made available throughb EDRS.

Publisher/ Distributor:	
Address:	
Price:	

IV. REFERRAL OF ERIC TO COPYRIGHT/REPRODUCTION RIGHTS HOLDER:

If the right to grant this reproduction release is held by someone other than the addressee, please provide the appropriate name and address:

Name:	
Address:	

V. WHERE TO SEND THIS FORM:

Send this form to the following ERIC Clearinghouse:	ERIC Clearinghouse on Information & Technology Syracuse University 621 Skytop Road, Suite 160 Syracuse, NY 13244-5290 E-Mail ericft@ericir.syr.edu 315-443-3640 1-800-464-9107 Fax: 315-443-5448

Send Form Clear Form